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PATENT 6.9.01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Schneewind	Examiner:	M. Navarro
Serial No.	09/292,437	Group Art Unit:	1645
Filed:	April 15, 1999	Docket No.	510015-213
Title:	IDENTIFICATION OF SORTASE GENE		

CERTIFICATE UNDER 37 C.F.R. 1.8: The undersigned hereby certifies that this paper and its enclosures are being deposited in the United States Postal Service, as first class mail, with sufficient postage, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on May 17, 2000.

Valerie Mata
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RESPONSE TO SECOND RESTRICTION REQUIREMENT

Honorable Assistant Commissioner for Patents
Washington, D.C. 20231

Gentlemen:

In response to the Second Restriction Requirement dated March 14, 2001, Applicant replies as follows:

I. THE RESTRICTION REQUIREMENT

Restriction to the invention of one of the following groups is required under 35 U.S.C. § 121 as follows:

Group I is claims 1-7, 26-29, and 49-54, drawn to a sortase-transamidase enzyme.

Group II is claims 8-25, drawn to nucleic acids encoding a sortase-transamidase enzyme.

Group III is claims 30-42, drawn to a method for screening a compound for anti-sortase-transamidase activity.

Group IV is claims 43-48, drawn to antibodies.

Group V is claims 55-61, drawn to a method for displaying a polypeptide on the surface of a Gram-positive bacterium.

Group VI is claims 62-65, drawn to a polypeptide displayed on the surface of a Gram-positive bacterium by covalent linkage.

Group VII is claim 66, drawn to a method for vaccination of an animal with a polypeptide.

Group VIII is claim 67, drawn to a method for vaccination of an animal with a covalent complex.

Group IX is claims 68-74, drawn to a method for screening for expression of a cloned polypeptide.

Group X is claims 75-78, drawn to a method for a diagnosis of a bacterial infection.

Group XI is claims 79-83, drawn to a conjugate comprising an antibiotic and a protein.

Group XII is claims 84-89, drawn to proteins having sortase-transamidase activity.

Group XIII is claims 90-97, drawn to DNA encoding the proteins of Group XII.

Applicants are further restricted to a nucleotide sequence encoding one single protein in the event that Group II is elected.

In the event that Group XII or XIII is elected, there is a further restriction to one sequence (i.e., one of SEQ ID NO: 4, 5, 6, 7. 8, 34, 35, or 36) for prosecution.

The inventions of Groups I and II were said to be distinct because they were said to be products with different structure and biological activities.

The invention of Group IV was said to be distinct from those of Inventions Groups I-III and V-XIII, because an antibody was stated to have an inherent affinity, avidity, and specificity that differed from those of simple proteins or DNA.

The invention of Group III was stated to be distinct from those of Groups I-II and IV-XIII, because the method was stated to require additional biological reagents and parameters for detection. Similarly, the invention of Group IV was stated to be distinct from those of Groups I-IV and VII-XIII for similar reasons. Analogously, the invention of Group IX and X were stated to be distinct from those of the other Groups for similar reasons.

The invention of Group VI was said to be distinct from those of Groups I-V and VII-XIII, because the invention of Group VI was stated to require the polypeptide to be displayed in a manner that is accessible to a ligand.

The invention of Group VII was stated to be related to the invention of Group I as product and process of use, but was said to be distinct because the polypeptide of Group I could be used in other methods.

The invention of Group VIII was stated to be distinct from those of Groups I-VII and IX-XIII, because it was stated to require vaccination with a covalent complex which has a separate biological activity and function.

The invention of Group XI was stated to be distinct from those of Groups I-X and XI-XIII, because it was stated that the conjugate of the antibody and the protein has a unique biological activity and function.

The invention of Group XII was stated to be distinct from those of Groups I-XI and XIII, as it was stated that they were all distinct proteins.

The invention of Group XIII was stated to be distinct from those of Groups I-XII, because they were stated to encode distinct proteins with distinct primary amino acid structures.

II. APPLICANT'S RESPONSE

Applicant hereby elects with traverse the invention of Group II, claims 8-25, drawn to nucleic acids encoding a sortase-transamidase enzyme, for prosecution on the merits.

Applicant further elects the nucleotide sequence encoding the protein of SEQ ID NO: 3 for prosecution on the merits.

The Restriction Requirement is respectfully traversed on the following grounds:

Firstly, the Examiner has not met the required burden for demonstrating the necessity for restriction. M.P.E.P. § 803 requires for restriction both: (1) that the inventions are independent or distinct as claimed and (2) that there would exist a "serious burden" on the Examiner if all of the claims were examined together in one application.

These requirements have not been met. Firstly, there is no demonstration that a "serious burden" on the Examiner would exist.

The subject matter of the inventions of the various groups is sufficiently interrelated that no serious burden on the Examiner would exist if all of the claims were

examined on the merits. This is because the art involved, if relevant art exists, largely overlaps. For example, publications describing the properties of cloned genes or genetically engineered protein constructs invariably report both the sequence of the cloned gene and the sequence of the resulting protein expressed from an open reading frame (orf). Similarly, the sequence listing in this application and other applications and patents include both the nucleic acid sequence and the resulting protein sequence from an open reading frame. This encompasses the inventions of Groups I and II and requires that they be examined together.

Similarly, such publications also typically report both the sequence and the properties of such proteins, including their immunological properties. These publications also typically report the activity of these proteins, including the product of their enzymatic activity. This would encompass at least the inventions of Groups III (screening activity), V (peptide display), and VI (polypeptide displayed by covalent linkage).

These publications also frequently describe the antigenic and immunogenic properties of the proteins described therein, including the preparation of antibodies. This would encompass the subject matter of Group IV.

Therefore, a "serious burden" on the Examiner sufficient to require restriction does not exist, at least for the inventions of Groups I, II, III, IV, V, and VI.

Secondly, the subject matter of the inventions as claimed is not distinct, but rather is related. This is because all of these inventions are substantially related by the activity of the sortase-transamidase enzyme.

Applicant does not traverse the restriction requirement on the basis of lack of patentable distinctness. Rather, Applicant traverses the restriction requirement on the relatedness of the subject matter of the inventions of the various groups, notwithstanding the possible existence of patentable distinctness. The inventions are related because they all rely on the structure or activity of the sortase-transamidase enzyme. Applicant, who is presenting this

information in a unitary manner in one patent application, should not be penalized by restriction when the subject matter of the inventions of these groups is so clearly related.

The comments made by the Examiner at pages 3-6 of the Restriction Requirement are not to the contrary. Notwithstanding the different properties of the proteins, nucleic acids, and methods of the inventions of these groups, they are still sufficiently related to avoid restriction. More significantly, the art required to search all of these groups is so closely related that there does not exist a "serious burden" on the Examiner if all of these inventions were searched and examined in a single application. The determination of the existence or non-existence of a "serious burden" should not be made according to arbitrary principles, but should reflect the actual state of the art.

Accordingly, the Restriction Requirement is respectfully traversed. The Examiner is therefore respectfully requested to either withdraw the Restriction Requirement and examine all of the claims on the merits, or, in the alternative, modify the Restriction Requirement and examine the inventions of Groups I-VI on the merits.

With respect to the requirement for the election of nucleic acid sequences encoding a protein with a single amino acid sequence, this requirement is also respectfully traversed on the grounds that a "serious burden" on the Examiner does not exist even if nucleic acid sequences encoding multiple amino acid sequences are examined in a single application. The state of the art is such that, once a single nucleic acid sequence encoding a protein is known, it is relatively simple and standard in the art to prepare variants of such a nucleic acid sequence using a variety of site-specific mutagenesis techniques to yield nucleic acid sequences that encode proteins of different structure. This is often done in an attempt to discover sites in the protein where changes in amino acid sequence affect the activity, such as the active site itself, sites where effectors bind to the protein to exert allosteric effects, sites for binding by cofactors or coenzymes, sites that affect the folding of the protein, and the like. It is common to make a number of amino acid substitutions at a single position, and to make changes at multiple positions. Accordingly, because many publications dealing with nucleic acid sequences that

encode a protein with a defined activity also include such variants, there does not exist a "serious burden" on the Examiner if such variants are examined along with the specified sequence.

Therefore, the Examiner is also respectfully requested to withdraw or modify the requirement for election of nucleic acid species that encode only a single protein sequence and allow the examination of nucleic acid sequences that encode variants of the protein sequence of SEQ ID NO: 3 or variants of the amino acid sequence encoded by the nucleic acid sequence of SEQ ID NO: 2.

III. CONCLUSION

In conclusion, Applicant elects the invention of Group II, claims 8-25, with traverse, for examination on the merits. Applicant further elects nucleic acid sequences that encode the protein sequence of SEQ ID NO: 3, with traverse, for prosecution on the merits. The Examiner is respectfully requested to withdraw or modify the restriction requirement and examine the inventions of Groups I-VI on the merits. The Examiner is also respectfully requested to withdraw or modify the requirement for election of nucleic acid sequences encoding a single amino acid sequence to allow the examination of nucleic acid sequences that encode variants of the protein sequence of SEQ ID NO: 3 or variants of the amino acid sequence encoded by the nucleic acid sequence of SEQ ID NO: 2.

The period for response to the Restriction Requirement is extended for two months, or until June 14, 2001, by submission of a Request for Extension of Time Under 37

C.F.R. § 1.136(a) and payment of the appropriate fee for a small entity. Accordingly, this response is being filed in a timely manner.

Respectfully submitted,

Dated: May 17, 2001

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